CONTRACT NNL05AA00B
(Task/Delivery Orders)

The following information has been determined to be exempt from disclosure and has been deleted from the task delivery orders:

• Funding Cost and Funding Fee.

The deleted material is exempt from disclosure under 14 C.F.R. 1206.300 (b) (4) which covers trade secrets and commercial or financial information obtained from a person and privileged or confidential. It has been held that commercial or financial matter is "confidential" for purposes of this exemption if its disclosure would be likely to have either of the following effects: (1) impair the Government's ability to obtain necessary information in the future; or (2) cause substantial harm to the competitive position of the person from whom the information was obtained, National Parks and Conservation v. Morton, 498 F2d 765 (D.C. Cir. 1974).

Disclosure of the financial information could cause substantial competitive harm to the contractor by providing its competitors insight into the company's costing practices and management approaches. Furthermore, disclosure would discourage other companies from participating in future competitive procurements, thereby impairing the Government's ability to obtain complete and accurate cost data, and, in turn, frustrating the mandate to obtain maximum competition in negotiated procurements.

I. Contract Funding

A. COST-PLUS-FIXED FEE

(1) For purposes of payment of cost, exclusive of fee, in accordance with the Limitation of Funds clause, the total amount allotted by the Government to this contract is [redacted] This allotment covers the following estimated period of performance: April 15,2005.

(2) An additional amount of [redacted] is obligated under this contract for payment of fee.

B. FIRM-FIXED PRICE

Firm-fixed price Task orders will be fully funded when issued.

II. Electronics Fabrication Support

This Statement of Work (SOW) covers the general requirements for Electronics and Fabrication Support Services at the Langley Research Center (LaRC). The majority of work will be performed at LaRC, primarily in those instances where equipment or other items to be worked on, or with, are located at LaRC. However, other work sites maybe used as required by task orders. In responding to LaRC task orders, the Contractor must meet strict research schedules. The Contractor shall respond to LaRC emergency requirements in all statement of work areas on a 24 hour, 7 days a week basis. The Contractor, upon notification by the Contracting Officer (CO), or Contracting Officer's Technical Representative (COTR), shall respond to LaRC emergency requirements within 2 hours after receiving notification of the request from the Government. "Response" is defined as having contractor personnel working on-site at the NASA LaRC facility. "Emergency" is defined as an unexpected occurrence or set of circumstances demanding immediate action at the discretion of the CO or COTR. (Historically there have been 1-2 emergencies per year with the average of 8 hours total being worked per emergency)

CLIN 1.0 ELECTRONICS FABRICATION SUPPORT

The Contractor shall fabricate research-oriented electronics circuitry as directed in task orders. This includes but is not limited to circuit assemblies for ground support, aircraft, space flight, laboratory, and research test facility

instrumentation requirements. Work shall encompass four (4) functional work areas: *general*, *aircraft*, and *micro-electronic fabrication*, and *special fabrication processes* as described herein.

The Contractor shall perform work in accordance with task orders that shall include performance standards and fabrication specifications in the form of schematics, assembly drawings, sketches, wiring diagrams, and/or written narratives describing the work to be performed along with any special fabrication operations, procedures, and techniques required to satisfactorily complete the task. Contractor provided electronics fabrication support shall include but not be limited to the following services as directed by task orders:

- Layout of parts, wiring, fabrication, installation, functional checkout, and modification of electronics circuitry
- Installation of parts/components (including both surface mount and through hole devices) such as, but not limited to resistors, capacitors, coils, transistors, and integrated circuits in printed circuit board assemblies
- Routing and soldering of wires to form circuitry
- Soldering of cable wires to specified terminals to connect circuits and subassemblies
- Mechanical fabrication including machining and painting of miscellaneous hardware such as panels, chassis, equipment racks, instrumentation pallets, and cabinets
- Quality assurance functions including checking continuity of circuits using circuit analyzers; performing quality assurance inspection of components, assemblies, and completed instrumentation systems; analyzing problems encountered and documenting all inspections and tests performed; recording of nonconformance, rejections, reworks, and repairs; integrating Government-provided subassembly drawings/specifications to form detailed schematic of completed task; and assuring compliance of end items with the NASA Technical Standards.

1.1 <u>General Electronics Fabrication</u> - The Contractor shall produce general electronics circuitry and hardware. Requirements range from fabrication and assembly of printed circuit boards, cable assemblies, wiring harnesses, and electronics chassis; to installation and wiring of complete research test facilities; to fabrication and assembly of electronics hardware components and subsystems for Center aeronautical or aerospace research projects.

1.2 Aircraft Electronics Fabrication - The Contractor shall produce aircraft electronics circuitry such as data acquisition instrumentation, telemetry systems, electronic display units, and a variety of ground support equipment for LaRC's flight research aircraft. This also includes mechanical fabrication of support equipment, racks, instrumentation pallets, and hardware modifications for installation into various research aircraft and facilities. Work will be performed in *LaRC's Hangar* and *on-board the various research aircraft.*

1.3 Microelectronics Fabrication - The Contractor shall produce microelectronics circuitry. This includes the performance of technical functions necessary for microelectronic circuit and sensor fabrication such as deposition of materials, photochemical patterning of circuit elements, interconnections, mounting of micro-miniature components, and other functions as required. The specialized microelectronics facilities and equipment necessary for performance of this work are located in *LaRC's Microelectronics Laboratory* and shall be provided for use by the Contractor.

1.4 Special Fabrication Processes - The Contractor shall perform a variety of special fabrication processes including but not limited to the following:

- Photo plotting, photographing, and processing of printed circuit board electronic artwork data files. The Contractor shall utilize these processes to produce printed circuit board artwork film plots. (In producing the required film plots, the Contractor shall electronically interface with the Government in an automated fashion utilizing compatible standard electronic file formats.
- Printed circuit board (PCB) fabrication. The Government may issue task orders for fabrication of PCB's from government-provided schematics/artwork. All PCB's must meet quality certification standards as identified in IPC-6012, Qualification and Performance Specification for Rigid Printed Boards.)
- Graphics-related processes including computerized vinyl cutting; metal-photo imagining; graphics artwork layout; screen-printing; decaling; and transfer lettering. The Contractor shall utilize these processes to perform the following: fabricate and install miscellaneous chassis faceplates; label/identify instrumentation panels, chassis, cabinets, printed circuit boards, and like items.
- Coatings application processes including conformal coating, staking, encapsulating and other processes related to the application of protective coatings to printed circuit boards and electronic assemblies.

The Contractor shall insure that personnel performing work under CLIN 1.0 functional work areas are qualified and certified in accordance with the training and certification requirements set forth in NASA Technical Standard, NASA-STD-8739 (latest version).

The Contractor shall conform to various standards/codes as specified in task orders. Such standards/codes include but are not limited to NASA Technical Standards, Mil-Specs/Standards, IEEE, ANSI, IPC and SAE. (If not specified in the task order the Contractor shall comply with NASA-STD-8739, latest version.) For critical hardware/systems, including flight critical, mission critical, and system critical hardware/systems, the Contractor shall insure all hardware is in conformance with the airworthiness guidelines and standards for design, fabrication, and installation of aircraft modifications as set forth in LAPG-1710.16, Aviation Operations and Safety Manual, FAA AC 43.13.1B-2A, Aircraft Inspection, Repair, and Alterations Manual, or other guideline/standard specified in the task order.

The Contractor shall inspect all completed tasks prior to delivery to the Government to insure compliance with the task order and specified standard. The Contractor shall furnish a final inspection report with completed tasks. The final inspection report shall include, but not be limited to the following information: (1) quality inspection report (Form FD-EFDB N-969, Quality Assurance Work Control Card, or equivalent) which documents the various quality inspections performed including any non-conformances, and (2) as required, certifications for materials, fasteners, components, processes, and procedures used. Completed tasks shall be delivered to a NASA quality assurance inspector or authorized NASA representative (as designated by the COTR) for final inspection and acceptance. Tasks with non-compliant deliverables will be documented by the Government along with the basis for rejection and returned to the Contractor, no later than one (1) business day for rework. The Contractor shall correct all deficiencies and return items to the Government within one (1) business day for final inspection and acceptance at no additional cost. Additional rework time to rework tasks may be requested by the Contractor, but must be approved by the COTR.

CLIN 2.0 METALS FABRICATION SUPPORT

The Contractor shall fabricate research-oriented mechanical hardware. This includes but is not limited to hardware for aircraft instrumentation, ground support instrumentation equipment, space-flight applications, and research test facility instrumentation requirements. The Contractor shall perform work in accordance with task orders, that shall include performance

standards and fabrication specifications in the form of drawings, sketches, and/or written narratives describing the work to be performed along with any special fabrication operations, procedures, and techniques required to satisfactorily complete the task. Contractor provided metals fabrication support shall include but not be limited to the following services as directed by task orders:

- Aircraft structural modifications and fabrication
- Aircraft flight test hardware fabrication
- Simulator development, modification, and fabrication
- Modification of commercial off-the-shelf (COTS) equipment
- Test facility development, modification, and fabrication
- Structural test article and research instrumentation/device fabrication

In the performance of these services, the contractor shall provide a full range of metals fabrication capabilities that include but are not limited to aviation metal-smithing; conventional and specialized machining; hand tooling and fitting; metal cutting, shearing, punching, drilling, grinding, sawing, welding, torch-cutting, forming, bending, rolling, braking, and fastening (utilizing riveting, and bolt/screw applications). The Contractor shall interface with NASA and Contractor research scientists, engineers, and technicians, including Quality Assurance personnel to develop and fabricate proto-types, complex mechanical systems, one-of-a-kind test articles, modified COTS equipment, and test facilities.

The Contractor shall provide documentation in accordance with the task order. Such documentation may include, but is not limited to Assembly History Records and 'redlined' fabrication drawings reflecting the 'as built' configuration of final hardware.

The Contractor shall conform to various standards/codes as specified in task orders. Such standards/codes include but are not limited to NASA Technical Standards, Mil-Specs/Standards, IEEE, ANSI, IPC and SAE. For critical hardware/systems, including flight critical, mission critical, and system critical hardware/systems, the Contractor shall insure all hardware is in conformance with the airworthiness guidelines and standards for design, fabrication, and installation of aircraft modifications as set forth in LAPG-1710.16, Aviation Operations and Safety Manual, FAA AC 43.13.1B-2A, Aircraft Inspection, Repair, and Alterations Manual, or other guideline/standard specified in the task order.

The Contractor shall inspect all completed tasks prior to delivery to the Government to insure compliance with the task order and specified standard. The Contractor shall furnish a final inspection report with completed tasks. The final inspection report shall include, but not be limited to the following information: (1) quality inspection report (Form FD-EFDB N-969, Quality Assurance Work Control Card, or equivalent) which documents the various quality inspections performed including any non-conformances, and (2) as required, certifications for materials, fasteners, components, processes, and procedures used. Completed tasks shall be delivered to a NASA quality assurance inspector or authorized NASA representative (as designated by the COTR) for final inspection and acceptance. Tasks with non-compliant deliverables will be documented by the Government along with the basis for rejection and returned to the Contractor, no later than one (1) business day for rework. The Contractor shall correct all deficiencies and return items to the Government within one (1) business day for final inspection and acceptance at no additional cost. Additional rework time to rework tasks may be requested by the Contractor, but must be approved by the COTR. The Contractor shall perform work in LaRC's Hangar, various research facilities, and on-board the various research aircraft.